



SAB-32™

Alpha/Beta Contamination Probe

The SAB-32 probe for measurement of surface contamination is designed to be used with any CSP™ survey meter or any computer-based system developed within CSP environment. Its plastic/ZnS phoswich scintillation detector has a 32 cm² detection area.

FEATURES

- Alpha/Beta surface contamination measurement
- 32 cm² Plastic/ZnS Phoswich scintillation detector
- Ergonomic counting mode selector on probe body
- Calibration via PC software
- Robust screwed-on grid simple to decontaminate
- Easy to change scintillator

SAB-32 probe is part of Canberra™ Smart Probe (CSP™) family, that drives numerous benefits, such as plug and play capabilities and exceptional readiness for field operations. Please refer to the “hand-held probes” brochure for further details.



DESCRIPTION

The SAB-32 probe is the ideal tool for direct measurement of alpha and beta emitters on glove boxes, small areas and for personal self control, allowing to check worker's arm in one pass only. Such a well-defined detection area helps to reduce the background noise and improves the Minimal Detectable Activity to better localize contamination spots. The probe body diameter has been reduced to facilitate general handling and reduce the risk of drops.

A push-button located on the probe housing selects the counting mode. When pressed, the probe switches to the next mode in a list of three and the LED is activated accordingly: alpha only – LED off, beta only – LED on and Alpha+beta – LED blinking. It is a powerful feature for the user to avoid the need to look back on the instrument when changing the mode.



Entrance grid has been optimized with ideal balance between open area and detector to grid distance to allowing good efficiency and best detector protection. It is hand screwed on the probe body and very easy to remove for decontamination or Mylar window foil replacement.

Calibration and QA measurements can be performed directly with the probe, without even using any instrument, by connecting the probe to a computer with Canberra Smart Probe Software (CSPS™), allowing your instruments to remain deployed in the field.

It can also be connected via CSP-COM modules to integrate third party system and behave as a contamination sensor sub-assembly.

SAB-32 probe can be upgraded (probe's firmware) via CSPS™ software, a USB cable and a PC.

SAB-32 | ALPHA/BETA CONTAMINATION PROBE

NUCLEAR CHARACTERISTICS

- **Unit to display:** depending on survey meter (c/s, Bq, Bq/cm² with SI CSP instrument and CPM, DPM, DPM/100cm² with American CSP instruments)
- **Emitter:** Alpha and Beta
- **Detector:** ZnS(Ag) adhered to 0.25 mm thick plastic scintillation material
 - Detection area: 32 cm² (total diameter = 70 mm, sensitive diameter = 64mm)
 - Mylar window made of two layers of 3 μm placed on detector entrance surface, total thickness: 6 μm
 - Protection grid transparency: 89%
- **Measurement range:** 0 to 10,000 c/s, 0 to 600 kcpm. Activity equivalent range depends on calibration emitter. Conversion coefficient is factory set with Co-60 for beta and Pu-239 for alpha.
- **Energy range:** Beta above 150 KeV and alpha above 3 MeV
- **Dead time:** 2 μs
- **Surface detection uniformity:** better than 60% of the highest efficiency point
- Gamma sensitivity (Cs-137):
 - Beta < 10 c/s/μSv/h
 - Alpha < 0.005 c/s/μSv/h
- Neutron sensitivity (Cf-252):
 - Beta < 5.0 c/s/μSv/h
 - Alpha < 0.05 c/s/μSv/h
- Background:
 - Ambient ≤ 100 nGy/h (10 μR/h);
 - Beta < 1 c/s (60 cpm).
 - Alpha < 0.01 c/s (0.6 cpm)
- Cross talk:
 - Alpha to Beta (Pu-239) < 5%
 - Beta to Alpha (Sr-90, Y-90) < 0.1%

ERGONOMIC

- **Display:** provided by survey meter or host system
- **Alarm setpoints:** 10 values for each unit to display. Saved in probe memory. They can be changed with CSPA and PC. Default alarm threshold is chosen in a list by use of survey meter keypad.

Detection efficiencies and MDAs with 100 cm² ISO 8769 sources in contact with probe

Nuclide	Emitter	Typical efficiency over 2π (%)	Guaranteed efficiency over 2π (%)	Response to activity (c/s)/Bq	MDA (Bq)
Co-60	Beta + Gamma	15	11	0.08	10
Cl-36	Beta	35	26	0.22	3.8
Sr-90/Y-90	Beta	35	26	0.22	3.8
Pu-239	Alpha	48	36	0.22	0.49
Am-241	Alpha	48	36	0.20	0.50

MDA: Background = 1.5 c/s measured during 100s in a 0.1 μGy/h ambience. Measuring time on source = 10s. Statistic: false alarm = 5% and non-detection = 5%. MDA are calculated using the formula recommended by IEC 60325-2004

ELECTRICAL

- **Power:** +5V supplied by host instrument (low voltage only)
- **Consumption:** 15 mA maximum.

MECHANICAL CHARACTERISTICS

- **Housing:** painted aluminium
- **Protection grid:** Stainless steel
- **Dimensions:** Length (with connector) x diameter (detector) x diameter (body): 225 x 85 x 55 mm (8.8 x 3.3 x 2.2 in.)
- **Weight:** 678 g (24 oz) without cable

ENVIRONMENT

- **Temperature:** -10 °C to +45°C (+14 to +113 °F)
- **Relative humidity:** 40% to 85% at 35°C
- **Cleaning:** housing easy to decontaminate
- **Ingress protection:** IP20

NORM

- **EMC:** conform
- **CE:** meets CE requirements
- **IEC:** designed to meet IEC 60325:2004
- **ANSI:** designed to meet ANSI N42.17A

ORDERING REFERENCES

- SAB-32: NOM006514 (EM99378)
- CSP Straight Cable (1.5 m length): NOM006282 (EM77336)
- CSP Straight Cable (10 m length): NOM006513 (EM99006)
- CSP Straight Cable (20 m length): NOM006512 (EM98830)
- CSP Coil Cable (0.7-1.5 m extensible length): NOM006283 (EM77337)
- RDS-31 Straight Cable (1.5 m length): 1233-319
- RDS-31 Coil Cable (0.7-1.6 m extensible length): 1233-320
- CSP-PC USB cable: NOM006288 (EM78466)
- Calibration/Setup Software (CSPA):
 - CSPA-F : NOM006289 (EM78468)
 - CSPA-R : NOM006298 (EM80642)
 - CSPA-E : NOM006299 (EM80643)



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